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EXAMINER	
DANIELSEN, NATHAN ANDREW	
ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,120	SUN, SHANG-PIN	
	Examiner	Art Unit	
	Nathan Danielsen	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-14* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The disclosure is objected to because of the following informalities: "Yang et al. in U.S. Pat. No. 0,039,189" (¶ 7) should be changed to --Yang et al. in U.S. Patent Application Publication 2003/0039189-- as US Patent 0,039,189 does not disclose "method for identifying the type of an optical disc", but rather discloses an "Improvement in Casting Boxes for Carriage-Axles". Additionally, this document should be cited in an IDS if Applicant desires it to be considered. Appropriate correction is required.

Claim Objections

4. Claims 1-14 are objected to because of the following informalities: claims 1-7 refer to method steps (a)-(d) and claims 6-14 refer to steps (f)-(h). However, there is no claimed step (e). Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 6, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (hereinafter Watanabe) (US Patent 6,493,304), in view of Yanagawa et al (hereinafter Yanagawa) (US Patent 6,975,574).

Note that the thresholds in the following claims are disclosed in Watanabe (FA, FB, FC, AA, AB, AC, RA, and RB in figure 16) and are also inherent when comparing the different values of the various signals shown in figure 15.

Regarding claim 1, Watanabe discloses an optical disc identification method for identifying the type of an optical disc in an optical disc reproduction system, wherein the optical disc reproduction system comprises a pickup, the pickup comprising a first light source and a second light source, the optical disc identification method comprising:

(b) measuring the characteristics of a focus error signal while the focus of the first light source is moving in the reflection layer of the optical disc (steps S3 in figures 5-7 and output waveforms in figure 15);

(c) measuring the characteristics of the focus error signal while the focus of the second light source is moving in the reflection layer of the optical disc (steps S15 in figures 5-7 and output waveforms in figure 15); and

(d) identifying the type of the optical disc according to the results measured in steps (b) and (c) (determinations of steps S4 and S18 in figures 5-7 utilizing the waveforms in figure 15).

However, Watanabe fails to disclose where the optical disc identification method comprising:

(a) measuring a first time needed for the focus of the first light source to move from a plastic layer to a reflection layer of the optical disc.

(d) identifying the type of the optical disc according to the first time.

In the same field of endeavor, Yanagawa discloses where the optical disc identification method comprising:

(a) measuring a first time needed for the focus of the first light source to move from a plastic layer to a reflection layer of the optical disc (figure 19); and

(d) identifying the type of the optical disc according to the first time ("the time interval A from the appearance of S due to the disk surface and the one due to the pit producing surface of a DVD type disk is shorter than the corresponding time interval B of a CD type disk; therefore, if the observed time interval is greater than a predetermined time threshold value, the disk is determined to be a CD type disk; on the other hand, if the observed time interval is smaller than the predetermined time threshold value, the disk is determined to be DVD type disk" (col. 11, lines 27-35 and figure 19)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have measured a first time needed for the focus of the first light source to move from a plastic layer to a reflection layer of the optical disc and to identify the type of the optical disc according to the first time, as taught by Yanagawa, for the purpose of providing a tilt servo control device and a tilt servo control method that can properly perform tilt servo control for optical recording media of various different types (col. 1, lines 56-59).

Regarding claim 2, Watanabe discloses where the first light source is a CD light source (170 nm LASER in figures 5-7 and 15) and the second light source is a DVD light source (650 nm LASER in figures 5-7 and 15).

Regarding claim 3, Watanabe discloses where the focus error signal measured in step (b) comprises a first maximum and a first minimum, and the focus error signal measured in step (c) comprises a second maximum and a second minimum (maximums and minimums of CD FE, SD FE, SD-W FE, and DC-RW FE in figure 15 as measured in the method of figure 5).

Regarding claim 4, Watanabe discloses where the method further comprises computing a first difference by subtracting the first minimum from the first maximum, and computing a second difference by subtracting the second minimum from the second maximum, and in step

(d), the method uses the first time, the first difference, and the second difference as judging conditions for identifying the type of the optical disc (values of CFE, SFE, DFE, and WFE in figure 15). However, Watanabe fails to disclose where the method uses the first time as a judging condition for identifying the type of optical disc.

In the same field of endeavor, Yanagawa discloses where the method uses the first time as a judging condition for identifying the type of optical disc (see claim 1 for citation).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the first time as a judging condition for identifying the type of optical disc, as taught by Yanagawa, for the purpose stated in claim 1.

Regarding claim 6, Watanabe discloses where if the optical disc is identified as a DVD type optical disc, the method further comprises:

(f) determining whether the optical disc is a dual-layer DVD according to the results measured in step (c) (figures 7 and 15).

Regarding claim 10, Watanabe discloses where if the optical disc is determined as not being a dual-layer DVD, then the method further comprises:

(g) measuring the characteristics of a radio frequency signal while the focus of the second light source is moving in the reflection layer of the optical disc for identifying the optical disc as a single layer DVD-ROM or a DVD+-RW (figures 7 and RFENV in figure 15).

Regarding claim 11, Watanabe discloses where step (g) means that if the radio frequency signal measured while the focus of the second light source is moving in the reflection layer of the optical disc comprises a maximum which is larger than a third threshold, then identifying the optical disc as a single layer, [high reflectance disc], otherwise identifying the optical disc as a [low reflectance, rewritable disc] (figure 7 and RFENV for the CD and CD-RW

in figure 15; additionally, it is apparent from the RFENV graphs for the CD and CD-RW that there is a difference in reflectivity between the two types of optical discs). However, Watanabe fails to disclose where the discrimination is between DVD-ROM and a DVD+-RW.

In the same field of endeavor, Yanagawa where "DVD-RAMs and DVD-RWs, that are rewritable disks, are made of a phase change material and hence show a low reflectance; double layered DVD-ROMs are made semitransparent in the pit producing surface and hence show a low reflectance; a disk showing a low reflectance also shows an S having a small amplitude; thus, the disk 12 is determined to be either a single-layered DVD-ROM or a DVD-R of the first category when the amplitude of the S is smaller than a predetermined threshold value, whereas it is determined to be a double-layered DVD-ROM, a DVD-RAM or a DVD-RW of the second category" (col. 11, lines 54-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the method of Watanabe to the discrimination between DVD-ROMs and DVD+-RWs, for the purpose stated in claim 1.

Regarding claim 12, Watanabe discloses where if the optical disc is identified as a CD type optical disc, then the method further comprises:

(h) measuring the characteristics of a radio frequency signal while the focus of the first light source is moving in the reflection layer of the optical disc (figure 7 and RFENV for the CD and CD-RW in figure 15).

Regarding claim 13, Watanabe discloses where if the radio frequency signal measured in step (h) comprises a first local maximum which is larger than a fourth threshold, then identifying the optical disc as a CD-ROM (figure 7, CRF in figure 15, and "if CD or CD-R has been loaded in the apparatus at this time, the amplitude of a V-shaped signal generated on

RFENV becomes larger than a predetermined comparison value as shown in FIG. 3 (at steps S3, S4)" (col. 17, lines 36-40)).

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, in view of Yanagawa, and further in view of Ra (US Patent 5,671,203).

Regarding claim 7, Watanabe discloses everything claimed, as applied to claim 6. Additionally, Watanabe discloses where a dual-layer DVD can be discriminated due to having two peaks in the focus error signal (figures 5 and 15, where SD-W is a disc having a higher density than a CD and having two layers). However, Watanabe fails to disclose where step (f) means that aside from a first local maximum and a first local minimum, if the focus error signal measured in step (c) further comprises a second local maximum which is larger than the first local maximum multiplied by a first factor or a second local minimum which is smaller than the first local minimum multiplied by a second factor, then identify the optical disc as a dual-layer DVD.

In the same field of endeavor, Ra discloses where each layer has a different effective reflectivity and thus a different focus error signal amplitude for each layer, where, as the layer being focused upon gets further from the optical pickup, the focus error signal amplitude get smaller by degrees. Thus a pair of multiplication factors would be necessary to determine if the second focus error signal is a focus error signal from a second or subsequent recording layer (col. 2, line 62 through col. 3, line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have discriminated a disc as a dual-layer DVD based upon a second focus error signal being larger than a predetermined percentage of the first focus error signal, as taught by the combination of Watanabe and Ra, for the purpose of recognizing a signal recording layer in a disk (col. 1, lines 33-44).

Regarding claims 8 and 9, Watanabe, in view of Yanagawa, discloses everything claimed, as applied to claim 7. However, Watanabe, in view of Yanagawa, fails to disclose where the first and second multiplication factors are 1/3.

In the same field of endeavor, Ra suggests that the multiplication factors of less than 1 would needed in order to determine which layer was being focused upon. However, Ra is silent as to the actual value of these multiplication factors. Therefore, the examiner maintains that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (See MPEP § 2144.05(II)(A)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the abovementioned multiplication factors, as taught by Ra, for the purpose stated in claim 7.

8. Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, in view of Yanagawa, and further in view of Kobayashi (US Patent 6,278,672).

Regarding claim 14, Watanabe discloses everything claimed, as applied to claim 12. Additionally, Watanabe discloses where the reflectance of a DVD-ROM recording layer is smaller than the reflectance of a CD-ROM recording layer when a CD light source is used. However, Watanabe is silent as to the particular structure of a SACD and how to then identify an optical disc as a SACD using this knowledge of reflectances and the method of determining a dual-layer DVD.

In the same field of endeavor, Kobayashi discloses where the structure of a SACD (figure 5) is similar to that of a dual-layer DVD (figure 7) in that it has two layers. Additionally, Ra discloses where two focus error signals are generated when moving the optical pickup in the manner shown in figure 2A.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the structure of Ra with the knowledge of the relative focus error signal amplitudes of single-layer CDs and DVDs and the dual-layer DVD discrimination method of Watanabe, for the purpose of properly identifying a SACD (col. 3, lines 6-12).

Citation of Relevant Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Watanabe discloses where a CD-type disc is differentiated from a DVD-type disc by comparing the difference of the peak-to-peak values of focus error signals obtained from the recording layer using two light sources to a predetermined threshold;

b. Yanagawa discloses where a method where a CD light source is used to determine the time/distance from the substrate surface of a disc to the recording layer. The method then uses the focus error signal amplitude using a DVD light source and the presence of a wobble signal in an RF signal to identify the type of DVD in the apparatus. For a CD-type disc, the process is the same as that of the DVD-type disc except that the CD light source is used;

c. Ra discloses where the type of disc is discriminated based on the number of layers detected in the disc;

d. Kobayashi discloses where the type of disc is discriminated between a dual-layer DVD and a SACD based on the time difference of the focus error signals from each layer;

e. Konno et al (US Patent 6,868,052) discloses where the type of disc is discriminated based on a comparison of a ratio of focus error signal amplitudes with a threshold and the ration of an RF signal amplitude with a different threshold;

f. Ono (US Patent 6,970,408) discloses where the type of disc is discriminated based on the comparison of a ratio of binary mirror signals to track-crossing signals to a predetermined value;

g. Ono et al (US Patent 6,822,936) disclose where the type of disc is discriminated based on the distance from a substrate surface to a recording surface, the number of recording surfaces, and the reflectance of the recording surfaces;

h. Masuda et al (US Patent 6,501,712) disclose a method similar to that of Watanabe; and

i. Hasimoto (US Patent 6,243,341) discloses where the type of disc is discriminated based on the number of layers detected in combination with the ratio of a focus error signal amplitudes obtained with a liquid crystal shutter operating in DVD mode to a focus error signal amplitudes obtained with a liquid crystal shutter operating in CD mode.

Allowable Subject Matter

10. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

None of the prior art of record, alone or in combination, teach the allowable feature of claim 5, where in step (d), if a first judging value which equals the second difference multiplied

by a time threshold then divided by the first time is larger than a second judging value which equals the first difference multiplied by the first time then divided by the time threshold, then the optical disc is identified as a DVD type optical disc, otherwise the optical disc is identified as a CD type optical disc.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571) 272-4248. The examiner can normally be reached on Monday-Friday, 8:30 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Danielsen
03/31/2006

ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER